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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,202	04/09/2001	Jia-Horng Shieh	ACR0025-US	3672

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EXAMINER	
ABRAHAM, ESAW T	
ART UNIT	**PAPER NUMBER**
2133	4

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,202	SHIEH, JIA-HORNG	
	Examiner	Art Unit	
	Esaw T Abraham	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13-20* is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims **1 to 20** are presented for examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No: 090102241 filed on 02/02/2001.

Specification

3. The disclosure is objected to because of the following informalities:

a) In page 1, line 6 of the disclosure the application number must be filled out by the applicant.

b) In page 1, line 7 the application's filing data and month must be filled out by the applicant.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims **1-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art (hereinafter admitted prior art) in view of Iwasa (U.S. PN: 6,470,473).

As per claims **1 and 7-9,** the applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system includes, a demodulator (see element 102) reads data and the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the applicant's submitted prior art teach that the main data append with PO to form an outer code RS (Reed-Solomon) and the RS append with PO and PI to form an inner code RS (Reed-Solomon), an ECC decoder reads the ECC block form the data buffer to form the error correction decoding along the PI direction and the PO direction of the ECC block, and a de-scrambling and EDC check reads corrected data stored in the data buffer for de-scrambling the main data and checking errors (see the applicants' disclosure page 1, lines 14-29). Furthermore, the applicants' submitted prior art teaches that when a host needs the main data an ATAPI (see element 118) reads the main data in the data buffer (see the applicants' disclosure page 1, lines 14-29). The applicants' submitted prior art did not **explicitly** teach a syndrome generator for

generating PI syndrome and PO syndrome and a memory coupled to the syndrome generator for storing PO syndrome. **However,** Iwasa in an analogous art disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. **Therefore,** it would have been obvious to a person having an ordinary skill in the art at the time the invention was made to combine (incorporate) the teachings of the applicant's prior art with the PI/PO syndrome generators including the memory (PO syndrome storing memory) for storing and calculating PO syndromes. **This modification** would have been obvious because a person having ordinary skill in the art would have been motivated to do so because it would be relatively high reliable in operation that results facilitating utilization of flexible and efficient memory configurations.

As per claims **2 and 3,** the admitted prior art in view of Iwasa teach all the subject matter claimed including Iwasa in figure 3 teach an ECC decoder or ECC unit (see fig. 3, element 40) connected to PI syndrome storing memory (see element 48) and PO syndrome storing memory (see element 50) to store PI and PO syndromes.

As per claims **4 and 10,** the admitted prior art in view of Iwasa teach all the subject matter claimed including a demodulator (see fig. 3, element 36) receives data read out from a disk (see element 14) to demodulate the received data and to develop the modulated data (convert codes to symbols) in the buffer memory (see col. 1, lines 44-53).

As per claims **5 and 11,** the applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system, a demodulator (see element 102) reads data and the data are stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the applicant's submitted prior art teach that the main data append with PO to form an outer code RS (Reed-Solomon) and the RS append with PO and PI to form an inner code RS (Reed-Solomon), an ECC decoder reads the ECC block form the data buffer to form the error correction decoding along the PI direction and the PO direction of the ECC block, and a de-scrambling and EDC check reads corrected data stored in the data buffer for de-scrambling the main data and checking errors (see the applicants' disclosure page 1, lines 14-29). Furthermore, the applicant submitted disclosure teaches that when a host needs the main data an ATAPI (see element 118) reads the main data in the data buffer. The applicant's submitted prior art did not **explicitly** teach PI/PO syndrome generators and transmitting PI syndrome to a data room and reading out PO syndrome. **However,** Iwasa in an analogous art disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see

element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. **Therefore,** it would have been obvious to a person having an ordinary skill in the art at the time the invention was made to combine (incorporate) the teachings of the applicant's prior art with the PI/PO syndrome generators including the memories (PI and PO syndrome storing memory) for storing and calculating PI and PO syndromes. **This modification** would have been obvious because a person having ordinary skill in the art would have been motivated to do so because it would be relatively high reliable in operation that results facilitating utilization of flexible and efficient memory configurations.

As per claims **6 and 12,** the admitted prior art in view of Iwasa teach all the subject matter claimed including a demodulator (see fig. 3, element 36) receives data read out from a disk (see element 14) to demodulate the received data and to develop the modulated data (convert codes to symbols) in the buffer memory (see col. 1 lines 44-53).

Examiner's statement for reason for allowance

The following is an examiner's statement for allowance:

5. Claims **13-20** have been allowed.

As per claim **13,** the prior arts (applicants' submitted prior art in view of Iwasa (U.S. PN: 6,470,473)) record teach a decoding system in a DVD storage system includes, a demodulator

(see element 102) reads data the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the applicant submitted disclosure that a de-scrambling and EDC check reads corrected data stored in the data buffer for de-scrambling the main data and checking errors (see the applicants' disclosure page 1, lines 14-29). Furthermore, the applicant submitted disclosure teach that when a host needs the main data an ATAPI (see element 118) reads the main data in the data buffer. Iwasa disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory. **However,** the prior art taken singly or in combination fail to teach a first de-scrambler and EDC check for de-scrambling main data stored in data buffer and checking whether errors in main data being corrected and a second de-scrambler and EDC check for de-scrambling main data which EDC checking is not finished yet and then checking again whether errors in main data being corrected. Therefore, claim 1 is allowable.

Claims **14-16,** which are directly or indirectly dependents of claim 13 are also allowable.

As per claim **17,** the prior arts (applicants' submitted prior art in view of Iwasa (U.S. PN: 6,470,473)) record teach a decoding method in a DVD storage system includes, a demodulator (see element 102) reads data the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the applicant submitted disclosure that a de-scrambling and EDC check reads corrected data stored in the data buffer for de-scrambling the main data and checking errors (see the applicants' disclosure page 1, lines 14-29). Furthermore, the applicant submitted disclosure teach that when a host needs the main data an ATAPI (see element 118) reads the main data in the data buffer. Iwasa disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory. **However,** the prior art taken singly or in combination fail to teach writing PI syndrome, said main data and PO into a data buffer and transmitting said main data to a first de-scrambler and EDC check to de-scramble said main data and check whether errors in said main data being corrected and reading said PI syndrome from said data buffer to an ECC decoder to perform the error correction decoding of

the PI direction, and transmitting the error to a second de-scrambler and EDC check get the EDC check of the PI direction. Therefore, claim 17 is allowable.

Claims **18-20,** which are directly or indirectly dependents of claim 17 are also allowable.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US PN: 6,167,548 Yamakura

US PN: 6,543,026 Dadurian

US PN: 6,052,815 Zook, Christopher R.

US PN: 6,158,039 Cho et al.

US PN: 6,317,855 Horibe

US PN: 6,009,549 Bliss et al.

7. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (703) 305-7743. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Esaw Abraham

Esaw Abraham

Art unit: 2133

ALBERT DECADY
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